

## REMARKS

### Examiner Interview

Applicant wishes to thank Examiner Boeckmann for the courtesy of an interview, which was extended to the undersigned on February 15, 2011. Applicant notes the Examiner's summary dated February 18, 2011, which is complete and accurate.

### Status of the Claims

Claims 1-22 are pending, claims 21 and 22 having been added based on the Examiner's helpful suggestion in the interview of February 15, 2011.

### Rejection Under 35 U.S.C. §103(a) - Kintner and acknowledged state of the art

Claims 1-7 and 11-20 have been rejected under 35 U.S.C. §103(a) as being unpatentable over the acknowledged prior art of Figure 1 (everything but the valve 70), in view of Kintner, US 3,426,799 (Kintner). Applicant respectfully traverses this rejection.

All claims presently pending require a dual pneumatic actuated three-way valve with no coil spring return mechanism comprising two air pressure diaphragms and two valve seats.

According to the Examiner, the acknowledged prior art does not specifically disclose that the valve is a pneumatically actuated three-way valve as claimed. The Examiner, however, further argues (a) that Kintner shows a pneumatic actuated valve (figures 1 and 2) and a three-way valve (figure 3), both having no spring return mechanism, and (b) that the three-way valve comprises first (22), second (23) and third (24) valve ports with two pneumatic ports (8 and 6), two air pressure diaphragms (the rubber seal on the top of elements 10 and 12), and two valve seats (any two of 13, 14 and 15). The Examiner concludes that it would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the teachings of figures 1 and 2 of Kintner with the teaching of figure 3 of Kintner in order provide a pneumatically actuated three-way valve, and substitute the new pneumatically actuated three-way valve of Kintner for the three-way valve of figure 1 in order to make the medical device operate more precisely by having a pneumatic return mechanism that can be adjusted.

Applicant respectfully disagrees. The rubber seals on the top of elements 10 and 12 are *not* air pressure diaphragms, but rather are O-rings. In fact, Kintner expressly *teaches away*

from valves such as those of the present invention that include air pressure diaphragms and valve seats, dismissing them as undesirable. Instead of valves having seats and diaphragms, Kintner advocates a valve actuated by a “piston which can be moved by application of extremely small pressures to operate the valve” and which dispenses with the need for “costly stems, and unreliable seats and diaphragms.” (col.1, lines 7-15).

Entirely different in its mechanism from the valves of the present invention, the Kintner valve involves a sliding piston assembly that moves from a default closed “seated position” to an “open position.” Specifically, Kintner teaches “floating O-rings” wrapped around a series of pistons that are mounted on piston rods. In its default state, as shown in Fig. 1 of Kintner, the valve is in the “closed position.” (col. 1, lines 35-37). Then, “[i]n operation, the O-ring actually “floats” radially outwardly as it moves from the position shown in Fig. 1 to that shown in Fig. 2 since the stretched O-ring leaves its seating position during such movement as it slides across the recessed area 16 in the flow stream. Line pressures immediately encapsulate the O-ring.” (col. 2, lines 48-66).

Thus, even if one of skill in the art were assumed to be motivated to combine Kintner with the acknowledged prior art, which that person would not, the result would not be the present invention.

Moreover, there is nothing in Kintner to support the assertion that the piston-valve of Kintner could result in the claimed three-way valve having “a default neutral state in which all valve seats of said three-way valve remain open when supply pressure operating said valve is removed.” See claims 2 and 11 and the various claims depending therefrom. In this regard:

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). “To establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.’ ” *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted)...

See MPEP 2112.

Reconsideration of the rejection under 35 U.S.C. §103(a) is therefore requested.

**Rejection Under 35 U.S.C. §103(a) – Liston in view of Kintner**

Claims 1-4, 6, 7 and 10-20 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Liston, US 3,817,425 (Liston) in view of Kintner. Applicant respectfully traverses this rejection.

All claims presently pending require a dual pneumatic actuated three-way valve with no coil spring return mechanism comprising two air pressure diaphragms and two valve seats.

According to the Examiner, Liston does not specifically disclose that the valve is a pneumatically actuated three-way valve as claimed. The Examiner, however, further argues (a) that Kintner shows a pneumatic actuated valve (figures 1 and 2) and a three-way valve (figure 3), both having no spring return mechanism, and (b) that the three-way valve comprises first (22), second (23) and third (24) valve ports with two pneumatic ports (8 and 6), two air pressure diaphragms (the rubber seal on the top of elements 10 and 12), and two valve seats (any two of 13, 14 and 15). The Examiner concludes that it would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the teachings of figures 1 and 2 of Kintner with the teaching of figure 3 of Kintner in order provide a pneumatically actuated three-way valve, and substitute the new pneumatically actuated three-way valve of Kintner for the three-way valve of Liston in order to make the medical device operate more precisely by having a pneumatic return mechanism that can be adjusted.

Applicant respectfully disagrees for the reasons analogous to those set forth in the prior section. Specifically, the rubber seals on the top of elements 10 and 12 are *not* air pressure diaphragms, but rather are O-rings. In fact, Kintner expressly *teaches away* from valves such as those of the present invention that include air pressure diaphragms and valve seats, dismissing them as undesirable. Instead of valves having seats and diaphragms, Kintner advocates a valve actuated by a “piston which can be moved by application of extremely small pressures to operate the valve” and which dispenses with the need for “costly stems, and unreliable seats and diaphragms.” (col.1, lines 7-15).

Entirely different in its mechanism from the valves of the present invention, the Kintner valve involves a sliding piston assembly that moves from a default closed “seated position” to an “open position.” Specifically, Kintner teaches “floating O-rings” wrapped around a series of pistons that are mounted on piston rods. In its default state, as shown in Fig. 1 of Kintner, the

valve is in the "closed position." (col. 1, lines 35-37). Then, "[i]n operation, the O-ring actually "floats" radially outwardly as it moves from the position shown in Fig. 1 to that shown in Fig. 2 since the stretched O-ring leaves its seating position during such movement as it slides across the recessed area 16 in the flow stream. Line pressures immediately encapsulate the O-ring." (col. 2, lines 48-66).

Thus, even if one of skill in the art were assumed to be motivated to combine Kintner with the acknowledged prior art, which that person would not, the result would not be the present invention.

Moreover, there is nothing in Kintner to support the assertion that the piston-valve of Kintner could result in the claimed three-way valve having "a default neutral state in which all valve seats of said three-way valve remain open when supply pressure operating said valve is removed." See claims 2 and 11 and the various claims depending therefrom. In this regard:

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted)...

See MPEP 2112.

Reconsideration of the rejection under 35 U.S.C. §103(a) is therefore requested.

### **Rejection Under 35 U.S.C. §103(a) - Kintner and acknowledged state of the art**

Claims 1-7 and 10-20 have been rejected under 35 U.S.C. §103(a) as being unpatentable over the acknowledged prior art of Figures 1-8 (including valve 70), in view of Kintner.

Applicant respectfully traverses this rejection.

As noted by the Examiner, the prior art does not specifically disclose that the valve is a pneumatically actuated three-way valve with no spring return mechanism and two valve seats.

The Examiner attempts to make up for this deficiency, however, by turning to Kintner, urging that "Kintner shows a pneumatic actuated valve that has a pneumatic port on one end, to

move the valve assembly to the open position, and either a spring return mechanism (figures 4 and 5) or another pneumatic port on the other end (figure 4), to move the valve assembly to the closed position, therefore, Kintner teaches that an pneumatic port can be interchangeable with an return spring mechanism.”

The Examiner further argues that it would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to replace the spring return mechanism of the prior art Takasago valve with a pneumatic port, including an air pressure diaphragm, in order to move the valve assembly in the opposite direction as the already existing pneumatic port and air pressure diaphragm, as taught by Kintner and (b) that this modification would “give the valve more accuracy in positioning the valve assembly between the two valve seats.”

Applicant respectfully disagrees. In this regard, it is believed that the prior art valve with the pneumatic port and spring return mechanism is at least equally as accurate in positioning the valve assembly as the proposed dual pneumatic valve when in use. Moreover, there are good reasons *not* to replace the spring return with a pneumatic return including the fact that the pneumatic return is significantly more complex in design.

Furthermore, as noted above, Kintner expressly *teaches away* from valves such as those of the present invention that include air pressure diaphragms and valve seats, dismissing them as undesirable. Instead of valves having seats and diaphragms, Kintner advocates a valve actuated by a “piston which can be moved by application of extremely small pressures to operate the valve” and which dispenses with the need for “costly stems, and unreliable seats and diaphragms.” (col.1, lines 7-15). One of ordinary skill in the art would not resort to the teachings of Kintner to modify a valve that contains such “unreliable seats and diaphragms”.

The Examiner has provided no evidence of a dual-pneumatic-acting three-way diaphragm valve in the prior art. In this regard, the valve that is used by Applicant was developed by Applicant as discussed in the present specification.

As noted in paragraph [0027], prior art spray machines like that of FIG 1 are exposed to coating solutions that can function like glue when dried, causing valves to fail. As the valves fail, they are swapped or repaired. Repairs typically involve replacement of the air pressure diaphragm. In an attempt to reduce such replacements/repairs, the present inventor elected to replace the spring return of an existing diaphragm valve with a pneumatic return. The resulting, double pneumatic acting pneumatic valve has a default neutral state so that the valve seats

remain open when not in use, which prevents gluing of the valve seats in the closed position. This problem is not known in the prior art, and this result is unexpected in view of the prior art.

For at least the above reasons, reconsideration of the rejection under 35 U.S.C. §103(a) is requested.

**Rejection Under 35 U.S.C. §103(a) – Acknowledged prior art, Kintner and Chemline Plastics**

Claims 8 and 9 have been rejected under 35 U.S.C. §103(a) as being unpatentable over acknowledged prior art of Figures 1-8, in view of Kintner and further in view of Chemline Plastics Ltd. (2001). Applicant respectfully traverses this rejection.

Claim 5, from which claims 8 and 9 depend, is patentable over the acknowledged prior art of Figures 1-8 in view of Kintner for the reasons set forth above. Chemline Plastics Ltd. (2001), which is cited as evidence of a pneumatic valve with stainless steel threaded inserts, does not make up for these deficiencies.

Reconsideration of the rejection under 35 U.S.C. §103(a) is therefore requested.

**CONCLUSION**

In light of the foregoing remarks, it is believed that the rejections of record have been obviated, and allowance of this application is respectfully requested. Applicant submits all pending claims are in condition for allowance, early notification of which is earnestly solicited.

Should the Examiner be of the view that an interview would expedite consideration of this Amendment or of the application at large, the Examiner is requested to telephone the Applicant's attorney at (703) 433-0510 in order to resolve any outstanding issues in this case.

Respectfully submitted,

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